Cancer in Canada

The bureau of epidemiology, Laboratory Centre for Disease Control, Health and Welfare Canada has recently issued an important book, "Cancer Patterns in Canada 1931-1974".[1] The publication may be used as a reference source for data and as a guideline for assigning priorities in the treatment of cancer; it is not merely a collection of statistics, graphs and tables.

A frequently discussed subject is the role played by environmental factors in human cancer. If causal relations could be established firmly the introduction of programs to counteract such factors would be a primary step in reducing the incidence of certain forms of cancer. Although the list of occupational factors in human cancer is long, very little is known about the nonoccupational environmental determinants of cancer in the general population.

It is difficult not to link environmental and lifestyle factors with cancer when one examines the differences in incidence and sites of cancer between those who emigrate from and those who remain in their native country, and the difference in cancer morbidity between the descendants of each group. Dennis Burkitt has argued that the variations in certain diseases, including cancer, can be explained mainly by changes in lifestyle and in diet. The recent decisions taken in regard to saccharin, based on its carcinogenicity in experimental animals, are directed to potential causative factors in our diets.

In addition to the known relation between cigarette smoking and lung cancer, strong associations have been found between smoking and cancer in other organs such as mouth, larynx and bladder.

Breast cancer seems to relate to age at first pregnancy. The incidence of breast cancer in women who have their first child before 20 years of age is about half that of nulliparous women and about 40% of that of women whose first child was born after age 35. Because of changing lifestyles the greater age at first confinement may result in an increase in breast cancer.

The mortality for malignant melanoma doubled in the 20 years between 1951 and 1970, probably because of the increased practice of excessive sunbathing.

As pointed out in the publication, many causative or potentially causative lifestyle factors are poorly defined. Given as examples are the cancer rates among members of the Church of Jesus Christ of Latter-day Saints (Mormons), who generally shun alcohol and tobacco and have a low incidence of cancers related to those agents. However, their incidence rates for other cancers are also lower; overall the incidence is about 25% lower in Mormons than in the general population of the United States.

Other environmental factors, such as unnecessary exposure to ionizing radiation, receive comment, and in this context it is worth remembering the recommendations of a multidisciplinary committee convened by the Canadian Medical Association in 1973:[2]

Whereas radiological mass screening programmes have been effective in the past and, whereas there now appears to be a reduced need for the continuance of such programmes, and whereas there is a high patient dose involved, be it recommended that:

a) Community-wide mass radiological surveys should no longer be used for the detection of tuberculosis.

b) In selected communities, in certain segments of the employee force, and in specific situations where warranted, mass radiological screening has a place, particularly where a wield in excess of 1 per 5,000 might be anticipated.

c) There be developed some other form of epidemiological indicators so that those involved in the detection and treatment of tuberculosis, would be aware of any impending or actual increase in tuberculosis, would be in a position to institute the appropriate radiological survey.

X-ray equipment of all classes must comply with the pertinent regulations set out by the Radiation Protection Bureau, Health & Welfare, Canada.

Hospitals should review their experiences with routine admission chest x-rays and discontinue the routine practice if the yield of tuberculosis and other pathological states does not justify the exposure.

The Radiation Protection Bureau carry out studies of exposure, particularly gonadal, in areas where x-ray equipment is used, viz. hospital, private office, dentist's office, chiropractor's office, industrial locations.

In 1973 cancer ranked second as a cause of death in both sexes. Among males 18 542 (19.4%) deaths were attributed to cancer out of a total of 95 375 and among females 14 807 (21.6%) out of 68 664. The actual number of deaths due to cancer was 25% higher in males than in females. The average age of death due to cancer was 66.8 years for males and 65.9 for females. When one considers the years of potential life lost, cancer was the leading cause in females but ranked only third in males.

There is an interesting statistic when the trends of age-standardized mortality for cancer between 1931 and 1972 are reviewed. These were in opposite directions for the two sexes; the rate for males increased and that for females decreased. During the 30-year period 1942 to 1971 the incidence of cancer for males increased by 28%, while that for females decreased by 14%. When the figures are recalculated after those for lung cancer are excluded it is apparent that the increase in incidence of cancer in males was due entirely to lung cancer; the incidence for all other forms of cancer actually decreased. For females, exclusion of cases of lung cancer did not greatly affect the incidence of all other forms of cancer, but the rate of decrease in incidence of all cancer, except lung cancer, has accelerated in recent years.

The book concludes with the following paragraphs:

The strategies for the control of cancer are limited by both the knowledge of etiology and the problems in reducing known etiologic factors. For example, control of cancer of the pancreas is limited by the lack of knowledge of etiology whereas control of lung cancer is limited by difficulty in reducing the prevalence of smoking. Prevention of lung cancer alone would reduce the total annual number of deaths due to cancer by 17.3% (both sexes). There is considerable evidence that control of smoking would not only prevent most lung cancer deaths but a substantial proportion of other cancer deaths (mouth, throat, larynx and bladder) and a considerable number of deaths due to coronary heart disease and chronic respiratory disease.

A comprehensive program with the objective of reducing cancer morbidity and mortality should have components in each of the four elements of the health field: human biology, environment, lifestyle and health care organization. Examples of present activities in each of these categories include: a) human biology: research in such fields as the immunological defence system, viruses suspected to be oncogenic in humans and the mechanism of chemical carcinogenesis in human cells in tissue culture; b) environment: setting of standards for exposure to carcinogens in occupational environments, standards for radiation-emitting devices, monitoring of air, water and food for the presence of carcinogens; c) lifestyle: programs to reduce the prevalence of smoking and excessive consumption of alcohol; d) health care organization: guidelines for the use of diethylstilbestrol. These activities at least represent the beginning of a control program but such efforts must be sustained and amplified in order to reduce the current level of morbidity and mortality due to cancer.

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References

1. *Cancer Patterns in Canada 1931-1974*, Ottawa, Health and Welfare Canada, 1977
2. Canadian Medical Association: *Proceedings of the 106th Annual Meeting Including the Transactions of the General Council, Vancouver, June 14, 15 and 16 1973*, p 87

The role of the respiratory technologist

Respiratory technologists have a key role in the management of patients with respiratory distress, although many physicians are not fully aware of the technologist's capabilities. A common impression is that the respiratory technologist is someone who administers intermittent positive-pressure breathing treatments to patients with chronic lung disease. This form of therapy, after careful evaluation, has been found no more effective than aerosol medication inhaled spontaneously, and it is now rarely used.

To describe the functions and to give to the medical profession better insight into the skills of the respiratory technologist the Canadian Society of Respiratory Technologists has produced a brochure* entitled "The Role of the Respiratory Technologist". In three pages it provides an overview of this interesting allied health field that has become so important in the treatment of patients with respiratory conditions.

The Canadian Society of Respiratory Technologists, with which approximately 1300 technologists are registered, is concerned with maintaining standards of practice in its field, providing a resource for continuing education and administering self-discipline within its professional group. An advisory committee of physicians drawn from the Canadian Anaesthetists' Society and the Canadian Thoracic Society helps the society meet these aims.

The practical field of respiratory technology comprises six categories related to diagnosis, therapy, equipment maintenance, education, administration and research. These are described and their importance to patient care is emphasized in the society's brochure, which is a capsule presentation that will permit every physician to identify the situations in which the respiratory technologist may assist him.

The role of respiratory technology departments as seen by Health and Welfare Canada[1] and some of the provincial ministries of health[2] is described in recently published guidelines for special units. These guidelines recommend that every active treatment hospital provide some of the services described in the society's brochure, though in small hospitals these services may be provided by someone other than a respiratory technologist. Every physician working in an active treatment hospital should address himself in particular to the role of the respiratory technologist and to the various services that are described for that role. For each of the services in the six major categories mentioned in the society's brochure the physician should be able to identify clearly the individual in the hospital carrying out these functions and should ask whether these functions are being carried out satisfactorily or whether they might better be performed by qualified respiratory technologists.

As the society's document implies, the role of the respiratory technologist is still evolving; during the past 15 years it has been expanding and changing rapidly. There is a need to give all personnel working in technologic fields related to patient care a common base of training from which the smaller groups may develop. Thoughtful physicians looking to increase the base of knowledge of all working in such fields could well consider the respiratory technology training program as a base on which to build the training of various smaller groups of specialists, such as dialysis technicians, perfusionists and pulmonary function laboratory technicians.

The Canadian Society of Respiratory Technologists has shown leadership in the development of a self-disciplined professional group. It has been of service to its colleagues in other allied health fields and to the medical profession by developing a clear-cut description of the role of a respiratory technologist. The society has also given evidence of leadership in the field of continuing education in the postregistry period. I urge all practising physicians to familiarize themselves with the role of respiratory technologists so that the skills and talents these individuals bring to the health care field may be used more widely and more appropriately.

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References

1. Canada Working Party on Special Care Units in Hospitals: *Guidelines for Minimum Standards in the Planning, Organization and Operation of Special Care Units in Hospitals*, Ottawa, Health and Welfare Canada, health programs branch, 1975
2. *Guidelines for Special Services in Hospitals, 1976*, Toronto, Ontario Ministry of Health, 76-3020 1500 11-76

*This brochure may be obtained from the Canadian Society of Respiratory Technologists, 395 Waterloo St., Winnipeg, Man. R3N 0S7.